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ORIGINAL ARTICLES.

VERNAL CATARRH IN PALESTINE.*

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The distribution according to numbers of the eye diseases in Palestine is quite peculiar, differing considerably from European statistics. This difference is due to endemic trachoma, the regular appearance in summer of the Koch-Weeks epidemics and the epidemic extragenital gonococcus conjunctivitis in the late summer and early autumn. Added to this are large numbers of purulent conjunctivitis of other ætiology and the scarcity of scrophulous and luetic eye affections. Oculists even who have worked here for years (Cant, Butler) have never seen blennorrhœa neonatorum; and I saw only one case.

How about vernal catarrh? My observations on this affection are based on material coming from Jerusalem and its neighborhood. In the littoral and the subtropical Jordan country the results would probably be different on account of difference in the climatic conditions. From July 1st, 1912, to the middle of February, 1915, I found among 16,790 patients of my clinic 26 cases of vernal catarrh, that is 0.155 per cent. Except five these were all Arabs or Spaniols, that is of the oldest inhabitants. The other five were one girl born here in the German colony and four Jewish emigrants having come here a few years ago from Russia, the country in which vernal catarrh is extremely rare.

The disease begins here as early as February, shows a continued increase toward summer and is most frequent in June and

*Klin. Mtsbl. f. Augenhlk., v. LIV, p. 510.

July. In one case only which was accompanied by secretion and ciliary irritation in an Arab with the tarsal form I found the disease to reach its height in December, otherwise this is the case usually in August and September. This was especially evident in two cases which I observed for a prolonged time. They showed in August on a previously smooth milky tarsal conjunctiva a newformation of papillæ and I could observe that the first flat papilla when growing is surrounded by a red area which disappears after a few days.

M. F., German, 20 years old, pale, complains of redness and itching of eyes for about 6 months. First attack in the summer of 1911, now a return of the same symptoms. The disease was then thought to be trachoma in one clinic and catarrh in another one.

July 22d, 1914.—There was only redness of the conjunctiva; a few weeks later the pale bluish color became more noticeable and I was confirmed in my opinion that I had to deal with vernal catarrh. Now I changed the indifferent therapy to a ¼ per cent. solution of kusylol. Redness and discomfort grew worse. Two weeks later the right eye showed in the centre of the tarsal conjunctiva of the upper lid the developing papilla surrounded by a red zone. A few days later this red zone disappeared. In the time to September 10th five further flat papillæ appeared. In the middle of December these papillæ were still in existence, the discoloration and discomfort, however, had disappeared.

In the second case, that of a Turkestan boy, 12 years old, I also saw the red zone around the first developing papilla. There were also some small follicles near the convex margin of the tarsus. In this case papillæ and follicles disappeared under treatment with adrenalin.

In both cases the conjunctiva remained smooth.

Concerning the age my observations agree with those of Saemisch, Kuns and others. My youngest patient was a 4½ years old boy who was said to have been affected for 2 years; my oldest a soldier of 25 years; more than half of my patients were between 9 and 13 years old.

The male sex figured in 92.31 per cent of my cases (2 girls out of 26 cases); Saemisch found 97 per cent., Homer 90 per cent.

Although two of these patients were men of strong constitution, the others almost without exception showed a more or less pronounced lymphatic habit, paleness, swollen glands in the pre-

auricular and inferior malar region, in the neck and in three cases great hypertrophy of the tonsils. The severest case I saw was one of infantilism.

E. S., laborer, 28 years old, immigrated 3 years ago from Siberia, came to my clinic on April 15th, 1914. He states that his eyes have been affected for one year only. He is of medium size, badly nourished, pale. At the left side of the neck there is a package of swollen glands as big as a hen's egg. In looks and actions he makes a child-like impression, the genitals are infantile, no hair on face or pubes.

Slight ptosis, photophobia, congenital and ciliary injection. The tarsal conjunctiva shows large pavement-like papillary unevenness and has a bluish-white tint. At half of the limbus corneæ there are solid, gray, nodular thickenings. The fornix is free. There is a peculiar yellow, elastic secretion, containing many eosinophiles. Since I was afraid that the strong papillary excrescences might damage the cornea I cut them off with a cataract knife. This considerably relieved the patient and the secretion stopped. On June 24th patient returned, the papillæ were as big as before, an ulcer had formed on the upper half of the cornea about 3 mm. in diameter. Soon a vascular pannus of the upper third of the cornea followed. Tranta's spots were plainly observable. The torpid ulcer showed a tendency to healing only when in removing the secretion from the fundus of the ulcer a pretty compact mass about a quarter the size of the lens came away. In the left eye, also, a corneal ulcer appeared at the same place and about of the same size which healed with surprising rapidity under airtight glasses improvised by me, as recommended by Bayer.*

If, like Emmert, we divide our cases into three groups, there was only one case of the bulbar form; there were white nodules with constrictions present all around the limbus in both eyes. Four were of the mixed type, the rest of the palpebral form. Saemisch, Axenfeld and Roemer find the mixed form the most frequent, the palpebral form the rarest one. In these groups are, also, included those cases—two mixed and one palpebral—which had corneal and uveal complications. One of histories we have already related above, the two other showed for weeks a repeatedly relapsing ciliary injection and hyperæmia of the iris with pain and photophobia. One of them is the 12 year old Arab M. E. In his brother, a high school pupil at Konstantinopal who granted my wish to examine him, I also, found a strong-

*Klin. Monatsbl. f. Augenhlk., LI, I, 1913.

ly developed palpebral form. He had been affected for two years and stated that his discomfort disappeared during the winter. This case of familial vernal catarrh may be added to the four pairs of brothers described by Myerhof*

In Palestine where trachoma is the most frequent disease, vernal catarrh, the diagnosis of which is often quite difficult, is more frequently than in other countries taken for this disease. In the differential diagnosis we have often to decide not whether we deal with trachoma or vernal catarrh, but whether or not both are present at the same time. I found this combination in three out of 26, Meyerhof in Egypt in 25 out of 49 cases. These are mostly trachomata in the scarforming state on the base of which the vernal catarrh develops; in rarer cases it is combined with an active trachoma. I saw this once in a 15 years old patient whose 7 years old brother had a secreting trachoma. The pavement-like unevennesses of the tarsus coalesced in one part to form a white plate of the consistency of cartilage 5 mm. in size. There were ring-shaped marginal opacities of the cornea and nodules at the limbus in the area of the palpebral fissure in both eyes. There were scars in the fornix and the subtarsal sulcus. After he had interrupted the treatment for more than 6 weeks he returned on November 29th because the right eye had become worse. I found purulent secretion, redness of the bulbar conjunctiva and trachoma granules in the fornix. The flat papillæ of this eye were red and lost much of their characteristic appearance.

In the text-books and in Graefe-Saemisch it is recommended to observe the age of the patient as a diagnostic aid, since in youth, the time of vernal catarrh, trachoma is said to be extremely rare. This, however, cannot apply to Palestine where trachoma infection usually takes place before the 6th year of life. I have mentioned this in my report on the treatment of trachoma in schools. Morax said the same about Egypt and Meyerhof confirmed it. Trachoma is, therefore, in the mixed forms the older disease, as a rule, and already in the scarforming stage.

With the exception of radium irradiation, so highly recommended in the last few years, I have emphasized with more or less success all the usual remedies, also ice water compresses and noviform. Darkness influences the general condition unfavorably and has, like a bandage which quickly reduces secre-

*Klin. Mtsbl. f. Augenhlk, L. I. 1912.

tion, only a momentary value. But I have seen a surprisingly favorable success with the airtight clear glasses recommended by Bayer. They influence favorably especially the cases complicated with corneal and uveal affections, but cannot be used in cases combined with active trachoma.

After having finished this report I had in the short time of 7 weeks occasion to see four more cases of vernal conjunctivitis.

On December 24th, 1914, the 10 years old boy, N. R., from Jaffa, consulted me. The family had immigrated from Southern Russia at end of March, 1914. The child is said to have been always healthy, but was found to have trachoma during a school examination in April. He was treated; then itching, photophobia, purulent discharge and pain came on and were almost unbearable during August and September. From the report of the oculist the fornices were first attacked and therefore a trachoma therapy was pursued, but the remedies were not regularly applied. When he saw the case again after several months the milky discoloration and several flat papillæ on the tarsus were noticed. Since the upper fornices were altered he assumed a combination of vernal catarrh and trachoma.

When I first examined the patient there was slight ciliary injection and photophobia; at the inner canthus in both eyes a peculiar yellow secretion rolled up like a ball of thread. It adhered quite firmly; on account of its tough elastic consistency it is difficult to remove and make a smear. Aside from the milky discoloration there are on the tarsal conjunctiva several flat, sharply defined papillæ. The conjunctiva of the fornices is uneven. Between narrow furrows of normal red conjunctiva there are flat, whitish discolored rows above the level, parallel with the margin of the lid. With a magnifying glass this part of the conjunctiva shows a picture of epithelial proliferation, which when seen on the tarsal conjunctiva in vernal catarrh is described as looking like tiling or pavement stones. There were no granules. An excision for diagnostic purposes was declined.

After several examinations I was convinced that it was a case of vernal catarrh, the epithelial proliferations of which were at first localized as has never been before described and in which the typical picture of the tarsal conjunctiva was only later developed. The excellent effect of the airtight glasses would, also, show there was no combination with recent trachoma. After one week's use of these the eyes assumed their previous aspect,

itching, secretion and slight ciliary injection disappeared and the proliferations grew smaller.

On January 2d the child was taken with scarlet fever. I saw him only five weeks later when he was well again and found that during this illness the vernal catarrh had spontaneously retrograded, as I had supposed it would. The tarsal conjunctiva of the left eye was perfectly smooth, on the right one there were three flat excrescences, some unevennesses in the fornices but smaller and flatter. There was still a little irritability of the eye when it was examined by oblique illumination, during which a tender transparent membrane like the breath on a glass covered the conjunctiva.

On February 8th I saw in a 7 years old Spaniol a left sided tarsal form of vernal catarrh. It was the only case in the winter of this year out of about 3,000 school children examined at Jerusalem.

On February 10th an Arab came from Jaffa with his two children. My diagnosis astonished him. He had been told by several oculists that the children suffered from vernal catarrh. The older, 8 years old one, is said to have been sick for 4, the younger, 4¼ years old, for 2 years. In summer the children suffer so much that they cannot open the eyes. They have the typical tarsal form, the older one with enormous rooster comb-like excrescences.

This, then, is another case of familial vernal catarrh.

MEDICAL SOCIETIES.

TRANSACTIONS OF THE PHILADELPHIA POLYCLINIC OPHTHALMIC SOCIETY,

At the Meeting April 8, 1915,
At which a Symposium on the "Neuro-ocular Symptoms of Tabes" was Presented.

Ocular Palsies in Tabes.—Dr. Posey.

Dr. Posey spoke of the transient tendencies of these palsies, stating, that it is an almost constant experience that the palsies that appear in the early stages of the disease vanish after periods of persistency ranging from but a few hours to two or three weeks; and, moreover, while it is true that the palsies that occur in the later stages are as a rule permanent, even these may be transient and may totally disappear, usually after a longer period, however, than when they are observed at the commencement of the disease. Thomas, who analyzed 111 cases of tabes from the Hopkins clinics in 1899, found the initial symptoms to consist of diplopia in 6 instances, and of other symptoms in 14 instances. Diminution of vision was the initial symptom in 4 cases. Double vision and dimness of vision were associated once and double vision with other symptoms 7 times. Ptosis was the first symptom associated with pain twice.

Dr. Posey found that the palsies vanished, for a time at least, on perhaps 90 per cent. of the cases which he had under observation. This percentage was based on an analysis of the history of 60 cases taken from his own records and from the study of 28 cases of advanced tabes, which he had at one time made in the wards of the Philadelphia General Hospital.

The tendencies of palsies to recur was also dwelt upon, either the same muscles being repeatedly palsied or the paralysis appearing in another muscle or muscles shortly after it had disappeared in one governed by the same nerve. In some cases the palsy may pass away in a few hours; in others it may persist for years. This return of the muscle to its normal condition after even years of paralysis should be recognized by ophthalmic surgeons and should tend to discontinue operations on the eye muscles of tabetics. Tabetic palsies are usually disassociated. This is essentially true when the palsy appears as an initial symptom.

Of a large number of cases studied by Uhthoff, it was found that the oculo-motor was involved in 54 per cent., the abducens in 33 per cent. and the trochlearis in 8 per cent. of the cases. From an analysis of 60 cases Dr. Posey observed, he found that the oculo-motor was at fault in 30 of the cases, the abducens in 6 and the trochlearis in 2. Paralysis of the eye muscles occurs in about 20 per cent. of all cases of tabes.

Dr. Posey stated that it has been his experience that inequalities in the size of the pupils and disturbances in reaction are found in the early stages of cerebral syphilis, often associated with optic neuritis, while palsies of the extraocular muscles, as a rule, belong to the later stages. When syphilitic palsies do occur in the early stages, they develop more gradually and persist longer, tabetic palsies, as has been said, manifesting a tendency toward speedy disappearance and frequent recurrence. Conjugate deviations and ophthalmoplegia externa are caused almost exclusively by syphilis.

According to Gowers, the initial symptom of tabes rarely appears within the first three years after the chancre; indeed in one of his cases it was not noticed until forty years afterward. Spiller thinks that usually about nine years elapse after the initial lesion before syphilitic palsies of the eye muscles appear. From a pathological study of 11 cases diagnosed clinically as tabes, Spiller found considerable lymphocytic infiltration of the pia, with thickening of the pial vessels.

Nervous Symptoms.—Dr. John H. W. Rhein (by invitation).

Dr. Rhein called attention to the fact that the early syphilitic manifestations, especially the skin lesions in cases in which tabes developed later, were never very pronounced and in some of the cases there was no history of syphilis obtainable whatever. The recent studies of the Wassermann test make it probable that all cases of tabes dorsalis are luetic.

Noguchi found the spirochæte pallida in one case of 12 cases of tabes studied. His findings have given rise to the belief that tabes and paresis are actually syphilitic manifestations rather than parasyphilitic. Dr. Rhein was not inclined to accept this view as the response to treatment and the absence of characteristic pathological findings of syphilis in cases of tabes is against this.

Dr. Rhein referred to his pathological study of 16 cases of tabes in which he found round celled infiltration of the meninges

in all cases, but which was not typical of syphilis except in five cases. He was inclined to the view that there was in all cases of tabes, however, besides the parasyphilitic lesion more or less of a syphilitic process. Therefore, in these cases an anti-syphilitic treatment is indicated. He called attention to the fact that there was a lymphocytosis in the cerebro-spinal fluid; 10 to 20 cells in the cm.m. indicating weakly positive reaction, 20 to 60 cells in the cm.m. a positive reaction, and over 60 cells in the cm.m. strongly positive. Globulin is increased and the colloidal test of Lange is positive in 80 to 90 per cent. of the cases.

The symptoms of tabes are sensory and trophic, mainly motor disturbances, being late except in the case of the ocular nerve, when they may be among the first symptoms. A possibility of a round cell infiltration as a cause of ocular symptoms was mentioned.

The intra-spinal injection of salvarsanized serum was recommended in the case of tabes even when there is optic atrophy. For the crises, section of the posterior roots from the 7th to the 10th dorsal nerves has been recommended. Also a tearing out of the 5th, 6th, 7th, 8th, and 9th intercostal nerves. A procedure recommended by Franke.

The importance of rest, electricity, hydrotherapeutics and Frankel's exercises was emphasized.

The Optic Nerve in Tabes.—Dr. William Zentmayer.

The only pathological condition of the optic nerve occurring as an integral part of the tabetic process is atrophy. Optic neuritis and diseases of the chiasm manifesting itself as a hemianopsia may be associated conditions, but occur as the result of a common ætiologic factor, namely syphilis.

The type of the atrophy is primary, but according to Fuchs the nervehead often looks as though the atrophy was a secondary one.

The frequency with which optic atrophy occurs in tabes is about 10 per cent. As Dr. Rhein has pointed out, it may occur in the preataxic stage or later after the case is well advanced.

The subjective symptoms are a failure of central vision and color perception. When this is determined objectively it is seen that fields of vision for red and green are very much contracted and that this is soon followed by a similar contraction for yellow and blue. Long after color perception has failed the limits of the field for form may yet be of fair size. Later, however, this

also contracts and total blindness ensues. The occurrence of a central scotoma is said by Uhthoff to occur in about 2 per cent. of the cases, but Fuchs' experience has led him to believe that it is of greater frequency. According to Fuchs the scotoma begins as a perfectly central one for color. Later there is extension toward the temporal region and finally the scotoma merges with the blind spot which itself has increased in dimensions. Careful search after the technique of Bjerrum will disclose absolute scotoma areas within the relative area and also a zone of absolute scotoma about the central one. Indentation of the peripheral form field occurs and this increases until it meets the central blind area.

The course of optic atrophy is two to four years. A question that has been much discussed is as to the effect of the atrophy on the prognosis of the spinal cord trouble. It is believed that when the atrophy is an early symptom the prognosis of the tabes is better, at any rate that the ataxia is delayed.

There is a difference of opinion as to the tissues first involved in the visual tract. Some consider that the degeneration begins in the ganglion cells of the retina while others consider that the papulo-muscular bundle is first involved. The changes found in the optic nerve are degeneration of the medullary sheath; breaking down of the axis cylinder. The fibres become varicosed and show droplets of myelin and fat. Interstitial changes are noted but are considered to be secondary.

Dr. Zentmayer said that on what he supposed to be empiric grounds alone it has been considered somewhat hazardous to use mercury in this form of optic nerve degeneration. It is important to remember Uhthoff's dictum that without syphilis there can be no progressive optic nerve atrophy.

Intraocular Muscles in Tabes Dorsalis.—Dr. Luther C. Peter.

Early evidences of intraocular involvement are, first, irregularity in the pupillary outline, and, second, inequality of the pupils or anisocoria. Both of these phænomena may mark the beginning of the Argyll-Robertson pupil. Posterior synechia should be carefully excluded. Inequality of the pupil is present in a large number of cases, but the difference between the pupils is slight. The unequal pupil may be dilated or contracted; dilated in diseases of the cilio-spinal centers and sympathetic, in paresis of the sphincter of the iris and in a break in the centripetal reflex path. Accident mydriasis, ruptured sphincter and

glaucoma should be carefully excluded. The pupil is contracted in the presence of paralysis of the sympathetic. Inflammation of the iris and an accidental miotic should be excluded.

Later signs of intraocular involvement are miosis and the Argyll-Robertson pupil. Miosis is due to the disturbance of the cilio-spinal centres or disease of the superior cervical sympathetic ganglion. Spinal miotic pupil may react to light and accommodation. The myotonic pupillary reaction occurs in spinal miosis, it is rigidity of the sphincter of the iris after light is thrown upon it and is probably due to disease of the iris tissue. Instead of miosis, mydriasis is a rather rare symptom of tabes. The Argyll-Robertson pupil is rather constant, occurring in about 80 per cent. of the cases. The lesion in the Argyll-Robertson pupil is probably in the afferent tract shortly after the fibres leave the sphincter nucleus. The exact location is in doubt. Sluggish reaction to light is quite as suggestive of the Argyll-Robertson pupil as complete loss of light. Great care should be observed in the determining of the pupillary reflexes so as to avoid all sensory and psychical stimuli.

The reversed Argyll-Robertson pupil is a rare phænomenon and difficult to explain. The loss of accommodation and convergence reflex occurs late in the disease and usually is associated with complete internal ophthalmoplegia. The paradoxical pupillary reaction to light or convergency dilatation for the near point is rare.

The irregularity and inequality of the pupil are early phænomena and of diagnostic value. Miosis and the Argyll-Robertson pupil are late. In themselves these reflexes are not pathognomonic of tabes, as they occur in paresis and syphilis of the nervous system, and in other conditions. When associated, however, with other symptoms, they are of great differential value.

AMERICAN OPHTHALMOLOGICAL SOCIETY.

Fifty-First Annual Meeting, at New London, Connecticut, July 7th and 8th, 1915.

Dr. G. E. de Schweinitz in the chair.

Reported by Miss Lulu Gay.

Review of the Glaucoma Question, with Special Reference to the Newer Conclusions of its Ætiology and Departures of its Surgical Treatment.—By Robert Sattler, M.D., Cincinnati, Ohio.

The origin of glaucoma is largely a question of ocular dynamics, and the physical sign of increased globe hardness only marks the partial or complete forfeiture of inherent kinetic forces. Like reduced tension in uveitis, idiopathic, sympathetic, or metastatic, it is only a more dominant effect of an unknown deeper cause.

For the same reason a greater or lesser degree of globe hardness or softness can, in the light of modern progress, be regarded only as a more certain guide to anticipate or ward off the otherwise certain destruction of the visual neurons.

The newer and long accepted surgical measures which direct their aim solely at the reduction of high tension in true and so-called glaucoma must not only often fail, but even prove harmful.

Ocular, brain, internal ear dynamics are analogous, and there is a similar interruption by means of loss of inherent kinetic forces of important internal organs, such as liver, kidney, etc.

More discrimination in the choice of surgical procedures for the relief of glaucoma simplex and the confirmed expressions of acute glaucoma appears a rational decree of modern surgical experience.

DISCUSSION.

Dr. Carl Koller, New York, N. Y.: It is true that high tension is the only sign of glaucoma. Almost every acute glaucoma can be reduced before operation. By this means the operation is made very easy and deprived of its dangers. The reduction of glaucoma is accomplished partly by general means, which indirectly strengthen the heart and circulation and partly by local means. The local means used are alternate instillations of eser-

ine (alkaloid), one-half per cent., in neutral olive oil, and dionin, 10 per cent. (once every hour until the pupil is narrow), and afterwards every two hours. After the reduction no difficulty is experienced in doing away entirely with general anæsthesia. In accordance with my practice a lateral posterior sclerotomy is performed with a Graefe knife. The operator will notice that in most cases the liquid escaping is water, and not vitreous. As a consequence of this sclerotomy, the lens sinks back, and the anterior chamber at once becomes deep.

Dr. W. B. Marple, New York, N. Y.: In regard to Dr. Koller's reference to the percentage of cases in which preliminary treatment reduces tension, I would say that I have not been so successful in that respect. I reduce the tension, so far as the tonometer is concerned, from 80 to 65, say; but so far as practical effect on the facility for doing the operation, I know that I do not reduce the tension in nine out of ten of the acute cases. If I do so in four or five out of ten, I am satisfied.

Dr. John E. Weeks, New York, N. Y.: After the subconjunctival injection of the anæsthetic, I have obtained, in my cases, a systematic reaction that has been somewhat distressing to the patient, although not alarming to the operator. I find a two per cent. solution of cocaine is sufficient in most cases. I use it almost invariably before doing the operation in cases of glaucoma. The effect in reducing the sensibility of the iris is very marked.

Dr. Colman W. Cutler, New York, N. Y.: I should like to ask whether dionin is always considered a safe drug to use in acute glaucoma. There have been cases reported in which the tension has been said to have risen after the use of dionin, and I think I have had such an experience.

Dr. William H. Wilmer, Washington, D. C.: I should like to ask the author of the paper whether he has found he is able, in chronic glaucoma, to do away with operative procedures. Our duty is to save the patient's eye, and not merely to get a scientific explanation of the biochemical changes going on. Some prefer one operation and some another; but is it our duty to operate?

Dr. Robert Sattler, Cincinnati, Ohio: No one questions that in acute glaucoma the eyeball must be opened by a liberal incision, and that the opening incision must be in the sclero-corneal limbus. The physical sign of high tension indicates an unmistakable threat to the neurons of the retina; and their degeneration is imminent or already in progress, even before it is con-

spicuously present to touch or tonometer. My practice is medicinal treatment in advance of or during the minimum stage; but, after all, it is a question of diagnosis. If you have a true glaucomatous focus, that which will save the eye most certainly is a carefully planned and executed opening of the eyeball, whether or not that be done by the modern methods. If one prefers a sclerotomy to a linear incision, this is a question of individual taste, and will have to be settled by the operator. Personally, I think that the best opening is into the sclero-corneal limbus. We can make an incision there without danger of incarceration of the iris. I believed in my cases that it was bad surgery when I carried the incision into the cornea, and, as the result, had an irritation and bulging. I cannot conceive of the filtration of a cicatrix as affording a rational explanation of the effect in reducing tension. We cannot prove that in glaucoma a filtering cicatrix really exists.

A Report of Several Cases of Chronic Simple Glaucoma Treated by Iridotasis.—By David Harrower, M.D., Worcester, Mass.

The report of cases includes two that were totally blind, and the operation was done for the relief of pain. One of these had a hæmorrhage in the anterior chamber, but it cleared up completely. The other cases show decided improvement in the vision and field. The tension was reduced in all.

DISCUSSION.

Dr. F. H. Verhoeff, Boston, Mass.: It seems to me that this is the operation that every one will be doing for chronic glaucoma, and that the ordinary trephine operation will be entirely given up. The first two cases in which I tried this operation, however, turned out to be failures. The first of these cases was one of chronic glaucoma in which cataract extraction had been done many years before. I found that the iris was atrophic, and came out piecemeal. It is impossible to do this operation under such conditions. In the other two cases I tried, the iris prolapsed into the wound immediately. I could not replace the iris properly, so I did my ordinary operation and the result was perfectly satisfactory. The next case I did came out perfectly. I shall continue to use this procedure as a substitute for the trephine operation.

Dr. Sattler: I should like to know whether Dr. Harrower has used the operation in cases of acute glaucoma.

Dr. Harrower: No; because iridectomy has been perfectly satisfactory in my hands in such cases.

Dr. Peter Callan, New York, N. Y.: My experience has been that if there is an incarceration, there are apt to be dire consequences. There is a constant source of irritation with this incarceration of the iris. Therefore, I believe that it is premature to report these cases as successful until a sufficient time has elapsed to enable one to see whether any bad results will follow.

Dr Koller: I believe that the relief of glaucoma consists in decompression; just as relief of tension in the skull consists in taking out a piece of bone, so relief of tension in the eye consists in taking out a piece of the sclera. I took up the use of the trephine very soon after it was first brought out. I was very enthusiastic about it in the beginning, but am not quite so enthusiastic now as formerly. We are apt to publish our successes, but not our failures, especially if they come late. If you injure the lens in any way at the operation, you have a chance to get posterior polar cataract; and sometimes, later, an entire cataract, even if there is no infection. Therefore, of late, I have gone back to my former operation, the modification of Holt's, which gives excellent results.

Dr. D. B. Lowell, Worcester, Mass.: I should like to corroborate some of the work done by Dr. Harrower. I have seen him operate on most of the cases; one in particular I am familiar with, done four years ago. The man's eye has been well ever since the operation, and the vision has been phænomenal. It was less than 22/100 before the operation; and to-day, with a correcting glass, it is 20/30 with a remarkably good field. The patient was absolutely blind in the other eye, the result of glaucoma, and had been so for several years before the operation. In no case, so far, has there been the slightest reaction of irritation in any way; and the eyes have been perfectly quiet.

Dr. Hiram Woods, Baltimore, Md.: Is this classical and traditional belief in irritation as the result of incarceraton of the iris as well founded as many think it is? I recall a case that I operated on fifteen or eighteen years ago. The boy had been struck with a stone and had iridodialysis. I did a scleral incision with a keratome, and left the iris there. That boy has grown up, and was in perfectly good condition two or three years ago. I also recall a case of a large iridic hernia after simple extraction done in 1898 or 1899, in a man of seventy odd years of age. He died only recently and had had normal vision all this time.

Dr. F. D. O'Connor, Worcester, Mass.: One of the cases of which Dr. Harrower spoke was one at which I was present and in which I was more than usually interested. It was that of a woman of seventy who five years previously had noticed floating spots and shadows with a gradual loss of vision. There was then absolute glaucoma in the right eye, and beginning glaucoma in the left. This was February 23, 1914. She continued under treatment for nearly a year; at the end of this time, however, she consented to an operation, and I referred her to Dr. Harrower's service. The wound closed very quickly, and all signs of irritation subsided rapidly. At the time of operation the tension of the left eye was 40 mm. of mercury. I have seen her from month to month since then. The tension is now reduced to 28, and has been at that point for three months. Vision has improved from 4/60 to 6/20. The three points that have impressed me in regard to the operation are, first, the absence of trauma; second, the increase of the field that Dr. Harrower has on the perimeter charts, from 20 to 30 degrees; and third, the lessening of the tension, as well as the improvement in the vision.

Dr. J. W. Cahill, Worcester, Mass: The one case which Dr. Harrower has spoken of I happened to see. The patient was absolutely blind, except for the perception of light. She can now see to read large print. I saw four other cases which he mentioned, at times subsequent to the operation, varying from six months to two years. In every case there has been absence of irritation following the procedure.

Dr. David Harrower, Worcester, Mass.: I quite agree with Dr. Callan that we should not report these cases as successes. I should have said "temporary successes." Dr. Woods spoke of extrusion of the iris. I think that is one of the great things of Borthen. It is his theory that incarceration and traction, more than filtration, secure the result that he spoke of. Shortly after the Transactions were printed I sent Dr. Borthen a copy of my letter, and he wrote back an interesting communication, in which he said he had done two hundred operations since the last report, and that every one had been successful. This operation has been done, I suppose, for eight or ten years, and Dr. Borthen reports his results as successful.

Tenotomy of the Inferior Oblique Muscle.—By William Campbell Posey, M.D., Philadelphia.

I have performed this operation in seventeen cases, and the

notes of four others have been placed at my disposal. All but one were congenital. The operation consists in a division of the tendon of the muscle at its origin in the lower inner portion of the orbit, after having injected the tissues with a two per cent. solution of novocain. At the end of forty-eight hours, the lips of the wound are firmly united, the only evidence of traumatism being, in some cases only, some subconjunctival ecchymosis of the lower inner part of the globe, which disappears after a few days. The results in all the cases were more or less satisfactory. The upper and inner tilt imparted to the eye by the over-action of the muscle usually disappeared; and in a number of the cases immediate relief was experienced from the traction that the muscle had exerted upon the globe, and from an annoying diplopia. The hyperphoria was reduced in many cases. In no case did scarring of the lid follow the operation. No gross ocular deviation was produced by the operation, and it did not interfere in any way with the proper action of the muscles that had not been disturbed.

DISCUSSION.

Dr. Alexander Duane, New York, N. Y.: Of the indications for operation given in Dr. Posey's paper, I think the most important are, first, paralysis of the superior rectus, congenital or traumatic, with secondary deviation of the inferior oblique in the opposite eye; and, second, paralysis of the superior oblique, with secondary deviation of the inferior oblique in the same eye. The former condition is rather frequent as a congenital anomaly. I think I have seen about forty cases. The picture is characteristic, so that the diagnosis can be made in some cases even at the age of a few months. Paresis of the superior oblique, with secondary deviation of the inferior oblique in the same eye, is another indication for tenotomy of the inferior oblique. The incision is made at the intersection of the lower orbital margin with a perpendicular dropped from the supraorbital notch. It should be carried right down to and through the orbital septum, close to the orbital margin. In searching for the tendon, it is well to keep close to the floor of the orbit and well to the inside, so as to grasp the tendon near its origin; and also, so as to avoid the aponeurosis of the inferior rectus, which may be connected with the inferior oblique by strong strips of fascia. The inferior oblique, more or less buried in fat and aponeurotic tissue, will be found if the hook is swept inward, with its point turned

inward and upward. I have operated in nine cases—in eight with good, yes excellent, results. In one case no material gain was made. As to the age at which operation should be performed, I think that this depends entirely on the symptoms. If these are at all pressing, I should operate early, even at the age of three or four years. I should also operate, if (a) the upshoot is very disfiguring; (b) wry-neck has already developed; (c) a secondary convergent or divergent strabismus is developing before my eyes. This is a not infrequent concomitant of these paralyses, but is evidently due to the involuntary effort to get the disturbing double image out of the way. Of course, orthoptic exercises and correction of the refraction should first be tried in this, as in other forms of strabismus; but, in my experience, it is just in these cases that these expedients fail and operation is necessary. In my belief, it is important in such cases to relieve first the vertical deviation, which is really the cause of the lateral squint; and in these cases, therefore, I would precede operation on the lateral muscles by a tenotomy of the inferior oblique.

Dr. William Zentmayer, Philadelphia, Pa.: I rise to substantiate what Dr. Posey has said regarding the ease with which the operation may be performed, the absence of scars from it, and the beneficial results. In all the cases the immediate effect was very striking; but in one the final result was not so good as the immediate result. Whether this was due to some fault of technique, so that union of the fibrous tissue took place, or otherwise, I do not know.

Dr. E. A. Shumway, Philadelphia, Pa.: In a discussion of Dr. Duane's paper read in 1911, I think, before this Society, I put on record a case in which I had reduced the hypophoria from 30 degrees to 8 degrees by advancement of the superior rectus. I said that because of the difficulty the patient still had in looking upward, due to spasm of the inferior oblique, I purposed doing a subsequent tenotomy of the inferior oblique. This I did the following fall, with entire relief of this diplopia. The hypophoria of 6 to 8 degrees still remained; but this diplopia when the patient looked upward was entirely relieved by tenotomy of the inferior oblique.

Dr. Weeks: The inferior rectus is so intimately connected with the inferior oblique by the fibrous tissue that it would seem to most ophthalmologists that the traction on the muscle of the inferior oblique would exert some influence on the anterior portion of the inferior rectus muscle.

Dr. William Campbell Posey, Philadelphia, Pa.: I have never noticed any action on the inferior rectus muscle in the seventeen operations that I did. If there had been, I think that the deformity would have been added to, rather than corrected, by tenotomy of the inferior oblique.

Rosacea Keratitis and Certain other Forms of Marginal Keratitis, Neuropathic in origin. Treatment by Peri-Corneal-Neurotomy.—By F. H. Verhoeff, M.D., Boston.

The marginal lesions of the cornea associated with herpes febrilis are essentially similar to the lesions of rosacea keratitis. The rapid healing of the lesions following section of the conjunctiva at the limbus affords proof that both conditions are neuropathic and due to impulses passing along the conjunctival nerves into the cornea.

DISCUSSION.

Dr. T. B. Holloway, Philadelphia, Pa.: I am more or less interested in Dr. Verhoeff's remarks with reference to acne rosacea. If the operation he suggests will relieve the tendency to recurrence that this disease frequently shows, I believe that it ought to be adopted. I have not been fortunate enough to see so many cases as he has seen. I think that if we examine carefully many cases of polyarthritis that come under observation we shall find lesions corresponding to what I saw in the eyes of a patient two years ago. The patient had arthritis with a characteristic neurokeratitis. He was put in the hospital, where he remained for several weeks. Thyroid and other treatment was given, and both eyes were bandaged for three weeks, with no result. That was two years and a half ago; and at no time since has he walked into my office when I could not find the characteristic lesions of neuropathic keratitis. Contrary to Dr. Verhoeff's observation, who found that anæsthesia was lessened, we have found no lessening of anæsthesia in the cases with the healed lesions, although there was a slight lessening in the neuroparalytic cases. Of the eleven patients that I have seen, four have shown definite corneal changes.

Dr. Verhoeff: In these typical cases, in which the lesions do not stain, I have been unable to make out any hypæsthesia. I occasionally get a case in which both eyes are involved. The cases I speak of here are those with this peripheral lesion, which clears up and develops a typical dendritic figure in the center.

You might expect that there would be more involvement of the ganglion in these cases; but there was only one out of the whole number. I suppose that in Dr. Holloway's cases there was probably involvement of the whole ganglion. You might then get a hypæsthetic condition without any lesion there. The lesion in the ganglion may not be enough to produce corneal lesions; but, at the same time, there remains hypæsthesia.

Some Experiences in Enucleation Under Local Anæsthesia.—By William M. Sweet, M.D., Philadelphia.

The methods of local anæsthesia include: (1) Injection of a solution of cocain at the insertion of each of the four recti muscles, and, after the separation of the conjunctiva and severing of the four straight muscles, injection in the region of the optic nerve of a quantity of Schleich's solution (Meyer). (2) Injection into the muscle insertions and in the region of the optic nerve, by a curved canula needle passed along the internal and external recti muscles, of a 1 per cent. novocain and adrenalin solution (Siegrist). (3) Deep injection back of the eyeball, in the four meridians, of a large quantity of novocain and adrenalin solution, sufficient to cause exophthalmos and swelling of the lids (Seidel). (4) Injection of a solution of 1 per cent. cocain and adrenalin in the neighborhood of the ciliary ganglion, and also in the insertion of the four straight muscles (Elschnig). A report of cases anæsthetized by the Elschnig and the Siegrist methods is made. I have done nine enucleations by the Elschnig method and twelve by the Siegrist. In six cases, the enucleation was practically painless. In two cases in which the strabismus hook was used, there was considerable pain when the hook was drawn forward. This led me to abandon the use of local anæsthesia for some years. The bleeding was less than with general anæsthesia in nearly all the cases. I believe that many cases of severe pain after enucleation under local anæsthesia are due to traction on the muscles by dragging on the orbital tissue. When general anæsthesia is not contraindicated and the services of a trained anæsthetist can be secured, I consider it the best method to employ.

DISCUSSION.

Dr. W. B. Lancaster, Boston, Mass.: Up to a year ago, I had done some three cases without a general anæsthetic; and every one of these was a flat failure, so far as freedom from pain is

concerned. It seemed to me that it was simply a question of faulty technique on my part; so I decided last winter, to try it again and do it better. I have done five enucleations since the 1st of January, besides several other operations requiring dissection; and every one has been perfectly satisfactory. That is, the patient has not only shown no evidence of pain, but has said that he did not suffer pain. In every case I used some preoperative sedative treatment. I also observed the suggestion of Dr. Sweet in regard to the psychic effect of a proper atmosphere in the operating room. In the second place, I convinced myself that I had been much too timid about the danger of using local anæsthetics. I used 5 cc. of a one per cent. solution of novocain. If there was much pain in the operation, I stopped and waited to have the anæsthetic take effect. It is a mistake to begin operating too soon. The patient is out of the hospital on the fourth day, and all the wounds healed perfectly well; but there may be less satisfactory healing when you fill the orbit with anæsthetizing solution.

Dr. W. K. Butler, Washington, D. C.: I have had two cases in which enucleation was done under strictly local anæsthesia. In one case, there was a painful shrunken globe; and the patient experienced considerable pain—due, no doubt, to faulty technique. The other case was one of election, as the man did not want to have general anæsthesia. My experience has led me to think that it is a good thing to supplement this method by giving a few whiffs of gas and oxygen. In the cases in which this was used, it was very successful.

Massive Granuloma of the Sclera (Brawny Scleritis).—By George S. Derby, M.D., Boston. Pathological Examination by F. H. Verhoeff, M.D., Boston.

The clinical picture of brawny scleritis was first described by Schlodtman. It is a rare disease. Not more than 16 cases have been pathologically examined. It usually occurs in young persons. The case reported here was in a young woman of thirty-four years. Indefinite symptoms of scleritis and uveitis lasting over five years had been present. Separation of retina was finally noted, and the eyeball enucleated. Pathological examination showed the sclera to be enormously thickened by inflammatory tissue. The average age in 16 cases was 16½ years.

Salvarsan in Interstitial Keratitis and in Optic Nerve Lesions.—By Arnold Knapp, M.D., New York.

Too much stress cannot be laid upon the importance of systematic and persistent treatment. The results were as follows:

Interstitial Keratitis.—Of 11 cases, the process remained localized to one eye during the period of observation in five. In four of these vision became practically normal, and one disappeared from treatment before conclusion. Notwithstanding treatment, the other eye became affected in two; the continuation of the treatment, however, resulted in very good vision in both eyes. In one case of bilateral affection resultant vision was 20/20 in each. In a group of relapsing interstitial keratitis, where both eyes were affected, there was no improvement in one; visual improvement in two.

Retrobulbar Optic Neuritis.—Two cases not improved by usual treatment were improved by intravenous salvarsan.

Optic Atrophy.—Five cases were treated intravenously and intraspinally, with no improvement in four, but improvement in one. Better results should be obtained if treatment could be given at a much earlier stage.

DISCUSSION.

Dr. James Bordley, Jr., Baltimore, Md: During the past two years, I have had all my doubtful cases of eye lesions examined intraspinously. In seventy-five per cent. of the cases in which the blood Wassermann was negative, the spinal Wassermann was positive. I have seen treated with salvarsan about 200 cases of eye lesions, and my own impression is that it is of very little value. The only cases that I have seen in which brilliant results have been obtained were those with lesions in the choroid. I have had four cases with atrophy of the optic nerve treated intraspinously. Unfortunately, I was able to get the full details of only two of these. Three were cases of progressive paralysis, and one was locomotor ataxia.

Dr. Koller: I have now under my treatment a child of a syphilitic father, who went to Aiken and was treated for syphilis. His children were Wassermanned, and found to react. They received salvarsan treatment, owing to the zeal of some physician; and in one of them, the result was an outbreak of interstitial keratitis. It was the worst case that I have ever seen. It lasted two years, and has not cleared up yet. I wish to draw

attention to the danger of this treatment when given to persons who have no symptoms of syphilis except a positive Wassermann reaction.

Dr. Peter A. Callan, New York City: In cases of lesions of the optic nerve, I have seen what I consider as disastrous results from the use of salvarsan. Regarding interstial keratitis, the doctor seems to think that salvarsan has prevented the development of the disease in the second eye. In the acquired form of syphilis with interstitial keratitis, it is unusual for the disease to attack more than one eye; although in the inherited form, the second eye is usually attacked. I hardly think that there has yet been time to feel sure that the disease is not going to affect the other eye in Dr. Knapp's cases.

Dr. W. B. Marple, New York City: I have had under observation during the last year eight cases which, under the care of other men, were treated intraspinously or intravenously with salvarsan injections or salvarsanized serum. In the first case the neurological findings in four months were greatly improved, the spinal Wassermann becoming negative. The general condition also showed improvement; but the vision in the right eye remained the same on May 28th, 1915, as it was when first seen, May 14, 1914. The right visual field was also unchanged. Another patient was first seen in November, 1914, when his case appeared quite hopeless. On March 22, 1915, four months later, the vision in the left eye had improved to 10/200. A third patient had marked optic nerve atrophy in both eyes, following specific infection in 1903. His vision in the right eye in November, 1914, was 3/200; in the left, 20/100. During the next four months, he had six intravenous and six intraspinal injections of salvarsan, followed by a very great improvement in the neurological findings and in the general condition. On April 17, 1915, his vision had increased from 3/200 in the right eye to 10/200. In the left, unaided, it was still 20/100. The correction of some astigmatism, however, which I regret that I had not previously attempted, brought his vision in the left eye up to 20/30. With this correcting glass, he could read music. Another case, which has been under my observation for some months, has interested me greatly. This patient, after going two years or more with good vision, after a combined extraction, got up an iridocyclitis. After running a slow course for several months, the eye quieted down and the opacities began to clear away. For a while, there was a gradual visual improvement as

the vitreous cleared. The visual improvement, however, did not continue with the progressive clearing of the vitreus. I then discovered that his visual field was concentrically contracted. He was examined by one of our most skillful men, who said that salvarsan might be very dangerous in such a case, on account of the so-called Jarisch Herxheimer reaction. Since the advent of salvarsan, the Herxheimer reaction in the body eruptions has been noted more frequently; for the reason that this drug has a much quicker effect in killing spirochætæ than has mercury. A small injection of salvarsan apparently activates or intensifies the local condition, which, however, as a rule, yields to persistent treatment. In our enthusiasm over the newer treatment, we should not forget the old. There should be intimate co-operation between the man treating the patients and the oculist. Of course these cases have not been under observation very long, and we must not be too sanguine. But so far as we have been able to observe them, this method of treatment bids fair to save the vision of many patients whose cases we previously regarded as hopeless.

Dr. R. L. Randolph, Baltimore, Md.: In interstitial keratitis due to inherited lues, I never got any results from the use of salvarsan; but from its use in the acquired form of interstitial keratitis, the results have been brilliant. I think that probably the location of the organism of lues has something to do with the results in these cases. In the inherited form of the disease, the spirochætæ are only exceptionally found in the cornea or aqueus; but in the acquired form, they are frequent.

Dr. George S. Derby, Boston, Mass.: Cases of interstitial keratitis should be looked on not merely as eye patients, afflicted with a disease of the eyes; but, rather, as victims of a dangerous general disease, of which the ocular condition is but a single phase. Antisyphilitic treatment should by no means cease when the ocular disease is at an end, yet this is what happens in most cases of interstitial keratitis. I do not think that it can yet be said with certainty whether any of the complications of hereditary syphilis can be avoided by an early and persistent course of treatment, or whether or not the severity of these complications can be influenced by such treatment. It seems reasonable, however, to suppose this to be the case. I have been much impressed with the amount of good done to these children in Boston, under long-continued treatment. In nearly all instances, there is a very noticeable improvement in the general condition

of the child; so that from being a backward, sickly youngster, he becomes strong and vigorous, and mentally much more alert. It is not practicable to test the baby's blood. Why, however, should not each mother's blood be tested? or perhaps the placenta might be used for the purpose. Given a positive reaction, it should be logical and justifiable to label that child as a suspect, and treat it and the mother accordingly. If this were done a long step forward in the control of the disease would be taken.

Dr. John B. Shannon, New York City: With reference to the Herxheimer reaction in interstitial keratitis, I would state that I had a case during the past winter, in a girl of eighteen years, who had a violent attack in both eyes. She was treated with mercurial inunctions, and treatment was also applied to the eyes. The disease, in spite of this treatment, pursued a virulent course. Within three weeks after the injection of salvarsan, the appearance of the cornea changed slightly. and instead of being grayish white, it became yellowish. The epithelium on the surface of both corneas broke down, and she proceeded to have a necrosis of the corneal tissue in both eyes. She had a dislocation of the lens of the left eye into the anterior chamber. The process was not so severe in the right eye. The result was that she has now no vision in the left eye, in which the dislocation of the lens occurred, and 5/200 in the right eye, the cornea of which has cleared up considerably. The question is whether it was an instance of Herxheimer reaction or not.

Dr. E. Terry Smith, Hartford, Conn.: During the last few years, the use of salvarsan for chronic lesions of the eye has been employed by us; and we have found it of considerable benefit in the acute conditions, but not so satisfactory in the chronic. A few years ago, I started to use serosalvarsan in the eye. We have been injecting one cc. under the lower outer quadrant of the conjunctiva twice each week, and afterwards using a powder of dionin. The results have apparently been very satisfactory, and I really feel that we are going to have a valuable method of treatment for superficial luetic conditions of the eye.

Dr. Holloway: I have not seen a great many cases of interstitial keratitis in which salvarsan had been used. and am doubtful whether in those in which it was used, the results were very promising. I recall a case of acquired luetic condition in the Eastern Penitentiary, in which thirteen injections were required before a satisfactory result was obtained. Then, however, the result was satisfactory, and vision was retained at what it was

prior to the onset of the infection. I have seen at least four cases in which the use of salvarsan was followed by blindness in advanced optic atrophy, and have been fearful of using it in cases of advanced optic-nerve lesions. During the past two years, I have had come under observation two cases in which, within a month after a negative Wassermann reaction was obtained by blood examination, an optic neuritis developed. I call attention to this, because of Dr. Bordley's suggestion in regard to intraspinous injections. If that method had been employed, I believe that a positive Wassermann might have been obtained in these cases.

Dr. S. Lewis Ziegler, Philadelphia, Pa.: I have previously reported some cases of interstitial keratitis in which the use of sarvarsan has brought about excellent results, but I have not used it in optic-nerve lesions, owing to the earlier statement that there is danger from that course. While the salvarsan has usually proved successful, it has not always done so. Not long ago, I showed before the Wills Hospital Ophthalmic Society a case in which there had been treatment with salvarsan without success, under a previous physician's care. In this case I used enesol, and brought about great improvement in the patient's condition. I used this instead of salvarsan for two reasons: one was that salvarsan had not done any good before; and the other, that the salvarsan was scarce at that time on account of the war. Enesol may be of some value to us. It is a new material. No treatment will always be successful in any series of cases.

Dr. W. H. Wilder, Chicago, Ill.: When we met a case of ordinary interstitial keratitis of the inherited type, we used to expect to have that case under observation and treatment for a period of from five to seven or nine months. Personally I have had the good fortune to see three cases in which the period of treatment was so distinctly shortened that I cannot help attributing it to the new method of treatment. One case was that of a child of five years with inherited syphilis. The nose, eyes and mouth were disfigured, and also the finger nails. Wassermann was positive. I gave three injections of neosalvarsan. The process had been one of extreme severity, and was so when I first saw the patient, in the fourth week of its course, when it had gone on to salmon-patch formation in the cornea. Within six weeks after receiving these injections, the child was perfectly well. The second case was not so marked; but within

two months I had it under control. In a recent case, one of the most severe that I have ever seen, we got the desired result in three months. In that case, the treatment was not begun early enough. If we can see the case in an early stage, we have a much better chance of securing improvement than when the infiltrate in the cornea has become too thoroughly organized.

Dr. de Schweinitz: The treatment of keratitis with neosalvarsan shortens the duration of the disease and lessens its activity. I am unprepared to say whether this method of treatment facilitates the disappearance of the exudates or interstitial deposits in the cornea or not, but I believe that it does. I have never seen a bad result from its use. I have seen a few cases which did not seem to be improved with the old-fashioned treatment, in which it seemed to control the lighting up of the inflammation in the other eye.

Dr. Arnold Knapp, New York City: We have always given ten injections. I do not think that you can accomplish anything with one or two. Regarding the treatment of optic atrophy, I think that is a very doubtful field for this method. What I wanted to suggest was the opportunity which we have in the character of the findings in ocular paralysis of the pre-optic-atrophy stage by a thorough examination of the spinal fluid and treatment directed towards making the cerebrospinal fluid as nearly normal as possible; and by this means, we ought to cure the patients.

The Ives-Langdon Photometer.—By H. Maxwell Langdon, M.D., Philadelphia, Pa.

We have taken the Henry apparatus and added to it a somewhat similar box, which is divided into two portions. One of these, the diffusion chamber, is lined with porcelain two millimeters thick; and the other, the light chamber, contains the lamp. The two chambers are separated by a partition, in the center of which is inserted the iris diaphragm. The opening of this varies, its size being controlled by a lever connected on the outside with a millimeter scale. The incandescent lamp is guaranteed to burn without change in intensity for one hundred hours. Two millimeters of porcelain was not found to be sufficient, and it was found necessary to increase this so as to make the light pass through six millimeters of porcelain in the opening, before falling on the sight hole. The adaptation time is twenty minutes. The current used is .3 milliampere. The iris

diaphragm is opened slowly, the average opening required in normal eyes to illuminate the sight hole sufficiently to produce retinal stimulation being 15 millimeters. The surface brilliancy may be calculated, or the record may be made in millimeters of diaphragm opening.

DISCUSSION.

Dr. Edward R. Williams, Boston, Mass.: One of the principal things that we have to take into account in measuring our lights is some form of screen that will show us whether these lights are equally intense or not. The next thing to consider is the disk, which is very trying to the eyes, and which must be looked at through an eye-piece with only one eye at a time. I have been working for some time to try to devise a better disk. You can work with mine without tiring the eyes; and if you get it in such a position that the lights are equal, the light circle with the dark spot in the middle will disappear.

A Review of the History of the Electric Ophthalmoscope, with a Demonstration of a New Ophthalmoscope, which Consists of a Rearrangement of the Parts of Antecedent Instruments. —By J. Herbert Claiborne, M.D., New York.

In 1884, Dennett took the handle of the Loring ophthalmoscope off, replacing it by a pasteboard handle with an electric light inside and a plane mirror at one end. Among the surgeons who have modified this instrument are Marple, Harrower, Hare, May and Koller. It was my purpose to put together an instrument composed of the parts of those that have gone before, making an electric ophthalmoscope that could be carried in the pocket and was well balanced, easily handled, simple in construction and reasonable in price. I used the hood of Hare, attaching to it the Harrower illumination, and put upon the side of the stem a button; so that the focus of illumination could be altered and the instrument used in both the direct and the indirect method. I adjusted the distance between the piece containing the battery and the hood, so that the instrument might be easily balanced and comfortable in the hand, and that the pull of the forefinger might fall on the adjusting button. The instrument is so slender that it can be slipped into a case no larger than that employed for spectacles. Although I used the Marple mirror, I cut out of it a segment in the shape of a triangle, with a base equivalent

to an arc of thirty degrees. I have used this instrument daily for four or five months, in my office and outside, and have found it very satisfactory.

I think it regrettable that the name of the originator of the electric ophthalmoscope has not been connected with its various modifications; and I suggest, for the sake of justice, that all these instruments, henceforth, be designated by a hyphenated name, in which that of Dennett shall have precedence.

DISCUSSION.

Dr. Marple: There is one thing that Dr. Claiborne said that I was glad to hear; and that is that Dr. Dennett's name should be associated with the name of this instrument.

Dr. Callan: I had an ophthalmoscope, but the metal mirror has undergone oxidation. When I look through the upper part at the light, I get atrophy of the optic nerve. It is bluish, in other words, and cuts off the red rays. The gentlemen should be on their guard against looking through an oxidized mirror, or they will make a faulty diagnosis.

Dr. Ziegler: Dr. Crampton was apparently the inventor of the battery in the handle, and should have the credit.

(*Continued in the October number.*)

ABSTRACTS FROM MEDICAL LITERATURE.

By W. F. Hardy, M.D.,
St. Louis, Mo.

THE PROGNOSTIC SIGNIFICANCE OF CHANGES IN THE RETINAL VESSELS.

Arnold Knapp (*Med. Record,* May 29, 1915) contributes a short but important article on this subject. He states that the presence of sclerotic changes in the retinal vessels pre-supposes with certainty a similar state in the cerebral arteries, but not the reverse. Raehlmann found changes in the retinal vessels in nearly one-half of 210 cases of general arteriosclerosis.

Others have confirmed these findings. Arteriosclerotic changes may involve either arteries or veins, or both. In some cases of retinal vascular changes no clinical evidences of general sclerosis can be found, but these cases if carefully watched will sooner or later show general symptoms. As to physical signs the arteriosclerotic changes may be only microscopic. Slight changes may not be recognized with the ophthalmoscope. Early changes are increased tortuosity of the arteries, presence of true arterial pulse and a progressive peripheral venous pulse. The arteries are generally narrow and show contractions of the lumen, with intervening small ectasias, or the beginning of miliary aneurysms. More pronounced changes are a loss of transparency of the vessel wall and the development of the "silver wire" effect. Knapp quotes De Schweinitz as emphasizing the following signs: (a) A marked corkscrew appearance of arterial twigs, especially those near the macula. (b) Strapping of a vein by a rigid artery pass-over it. (c) "The nerve head has an appearance often loosely described as 'congested'."

For a certain diagnosis of arteriosclerosis of the retinal arteries the vessel walls must be outlined with white lines (vascular sheathing), and distinctly thickened; the lumen must be narrowed up to the point of ischæmia and complete obliteration. In regard to the prognostic significance the following deduction is the result of Gejs's investigations: "Distinct arteriosclerotic changes in the retinal vessels indicate the existence of similar changes in the cerebral vessels."

Vascular changes in the retina, due to syphilis, have not the same serious general prognostic importance as the corresponding arteriosclerotic changes.

Retinal hæmorrhages have the same serious prognostic significance that arteriosclerotic changes in the retinal vessels possess. Vascular changes in albuminuric retinitis are not pronounced on ophthalmoscopic examination. Vitreus hæmorrhages have not any definite prognostic value unless they are associated with distinct ophthalmoscopic signs of arteriosclerotic changes in the vessels. Knapp states that a very remarkable clinical feature are attacks of obscurations which patients with vascular disease of the retinal arteries are subject to. They may be forerunners of partial or complete permanent loss of sight. The occurrence of these obscurations may be explained as due to spasm affecting the vessel. The author arrives at the following conclusions: (1) Distinct arteriosclerotic changes in the retinal

vessels indicate a similar state in the cerebral vessels, but not the reverse. (2) Slight changes are suggestive and of importance if associated with other symptoms of arteriosclerosis. (3) "Silver wire" retinal arteries and retinal hæmorrhages, if no disturbance of the blood constituents is present, are each indicative of raised blood pressure. (4) In nephritis and diabetes there are changes in the retina due to arteriosclerosis which are independent of and give a different prognosis from the usual albuminuric and diabetic retinitis. (5) Syphilitic disease of the retinal vessels has no general prognostic significance; thrombosis of the central retinal vein is in more than one-half of the cases purely a local lesion. (6) Temporary obscurations of vision in patients with arteriosclerotic changes of the retinal vessels are of grave significance for sight.

DOUBLE CHANCRE OF THE EYELID.

C. E. Finlay, of Havana (*Archiv. Ophth.*, July, 1915), because of its rarity, reports a case of double chancre of the eyelid. A chancre existed both at the inner and outer canthus, the former presenting the true Hunterian characteristics. Both the preauricular and submaxillary lymphatic glands were inflamed. Later the spirochæte were found, a Wassermann examination proved positive, and still later mucous patches appeared in the mouth. The patient was a worker in a tobacco factory, bathed her eyes in a basin used in common by all employees, numbering 200, and wiped her eyelids with a common roller towel. Finlay says the frequency of this affection varies greatly. He was able to find reports of about 100 cases. Willbrand and Staehlin in 30 per cent. of cases of extra-genital primary sore, in a total of 16,616 cases of syphilis, do not mention a single case of chancre of the eyelid. Other authors give varying statistics. In some places, Russia for instance, the proportion of cases is greater, due to the habit of the peasantry of treating eye affections by licking them. Kissing is another mode of transmission, while physicians have been infected when treating syphilitic throat cases. A few cases have been the result of auto-infection. This is the first case reported in Cuba. In Finlay's patient sexual relations were denied and the mode of infection was supposed to be through the pernicious and filthy habit of using a common basin and common roller towel. It is not clear whether the patient

originally had a hordeolum which was secondarily inoculated by an infected towel, or whether what was originally taken for a hordeolum was in reality an as yet undeveloped chancre. Among the clinical features of the case, one of the most interesting is the double lesion at the inner canthus and outer commissure. Findlay found in literature but eight other cases of double chancre and one of triple chancre.

BOOK REVIEW.

THE AMERICAN ENCYCLOPEDIA AND DICTIONARY OF OPHTHALMOLOGY. Edited by Casey A. Woods, M.D., C.M., D.C.L. Assisted by a large staff of colaborators. Fully illustrated. Volume VI. Dioptric system to exophthalmitis. Chicago, Cleveland Press, 1915.

Like its predecessors, this volume of the American Encyclopedia of Ophthalmology is remarkable for the quantity of scientific material and the number of catchwords it contains. This is, however, in no way interfering with the quality of its contents, but rather enhances it. While the larger articles do full justice to their subject, a great deal of valuable and important information is, also, to be gained from the numerous smaller and small ones. Among the larger articles in this volume those on Electricity in Ophthalmology, Electromagnet, Entropion, Enucleation and its Substitutes and Examination of the Eye may be particularly mentioned.

The rapidity with which the separate volumes leave the press is a feature of the enormous undertaking which must be particularly commended.

Surely the editor and publisher deserve high praise and the congratulations of the English speaking ophthalmic public in particular.

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